

DETAILED ACTION

1. This office action is in response to applicant's remarks filed June 16, 2009.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 9, 10, 12, 13, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Poddar et al. (U.S 6,933,597).
4. Poddar (e.g. Fig. 1-3) discloses:
- (cl. 9) a spacer (16) to provide clearance for bond wires (not labeled; Fig. 1) attaching to bond pads on the lower die (e.g. spacer lifts top die to access pad/contact on lower chip); a thin-film passive element (e.g. thin enough to be embedded in spacer; Abstract) integrated on the spacer (Col. 3, Lines 11-18); an adhesive layer (Fig. 3-4; 21, 22; plastic mold package body, Col. 2, Lines 56-64)) assembly to attach the spacer and the thin-film passive element to the upper and lower dies (14, 12); and conductors (21, 22) attached to the passive element and the adhesive layer assembly to connect the passive element to at least one of the upper and lower dies:

- (cl. 10, 16) upper adhesive to attach to the upper die and lower adhesive top attach to lower die (e.g. body surrounds chip and in between conductors)¹;
- (cl. 12) passive element thickness substantially less than spacer (e.g. can be embedded in spacer thus must be thinner; Abstract);
- (cl. 13) passive has multi-turn geometry (e.g. inductor; Col. 3, Lines 11-18);
- (cl. 15) conductors are bumps (21, 22) to connect passive to at least one upper and lower dies.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

¹ Note previously cited Fukuda et al. (U.S 2004/0145040) package showing package surrounding chips/passive and components.

7. Claims 11, 14 and 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poddar et al. (U.S. 6,933,597) in combination with Perino et al. (U.S. 6,621,155).

8. Poddar discloses the elements stated in paragraph 4 of this office action and further a package substrate (18), but does not disclose the claimed range of inductance/resistance or a plurality of stacked dies.

9. With respect to the passive element being between the spacer and lower adhesive in claim 11, the placement being on top embedded in or on the bottom of the spacer would not modify the operation of the device. As such, the mere shifting of the passive element is unpatentable as a matter of design choice. See e.g. *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

10. With respect the claim 14 and 22, the modified prior art discloses the claimed invention except for the claimed range/set inductance. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed inductance, since it has been held that where the general working conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

11. With respect to a there being a plurality of stacks in claim 17, Applicant failed to timely traverse examiner's official notice that a plurality of stacks are known for forming various computer and portable devices. As such traversal is deemed waived. Perino (U.S 6,621,155 at Col. 1, Lines 13-18) is provided for the limited purpose of further evidencing the well known feature of adding multiple stacks to provide e.g. portable devices.

12. Furthermore, the duplication of stacks would be obvious to one of ordinary skill in the art, since it has been held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. See e.g. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). MPEP 2144.04.

Response to Arguments

13. Applicant's arguments filed June 19, 2009 have been fully considered but they are not persuasive.

14. First, applicant contends that the claimed invention is patentable over the prior art, because Poddar does not show its wires attaching to bond pads on lower die, because Poddar only shows wires connected from die to lead frames, and there is no bond pad shown on the lower die. A patent is good for its disclosure for what is both express and implicit within its disclosure. Poddar discloses conductor (e.g. 22) contacting portions of a chip, even though not shown, absent a pad /trace/metallization etc. the conductor would not be able to connect mechanically or electrically to the chip. Accordingly any argument that there is no pad on lower dies are not persuasive, since there are required to provide mechanical and electrical contact to the die.

15. Applicant further argues that the prior art does not disclose thin film passive components, because thin film is not merely thin elements, but instead the thin film technology allow for small structure yields. Examiner is unpersuaded. Although examiner agrees that a thin filed process can produce a tighter coil, applicant's remarks are based on the process of making the inductor. However, applicant has not provided further limitations that structurally define his invention over the prior art. Simply, because use of thin film technology may provide tighter coils, it does not mean that larger coils can not also be produced using the thin-film process. Applicant's claim of thin film as a process limitation as argued does not structural limit applicant's passive devices, since the dimensional limitations are only options that may be achieved. Rather Poddar discloses the same structure as claimed. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)².

16. As for applicant's allegation that conductors 22 can not be an adhesive layer, because solder bumps are spherical in shape, while their layer is both thermally and

² Note by newly cited art that even if claim could be amended such that the process of the thin film technique as argued imparted patentability, such a limitation would be found obvious as a means to solve problem of embedding passive component in a spacer. E.g. KSR Int'l v. Teleflex Inc., 127 S.Ct. 1727,1743, 550 U.S. ___, 17 (2007) (finding that when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to

electrically conductive. Examiner disagrees. Since solder assist in mechanically attaching the spacer and chip, and is a thickness of some material laid on or spread over a surface it falls within the plain meaning of the term layer. Since applicant did not provide a special definition or further claim that his adhesive was both electrically and thermally conductive, his remarks are not persuasive since they do not further limit the term adhesive.

17. Assuming the conductors are not the adhesives, applicant contends that the Poddar's encapsulant material/plastic mold is not an adhesive, since allegedly the material only surrounds the module and there is no teaching that the body is between the spacer/thin film and upper and lower chips. Examiner is unpersuaded. As applicant is well aware in a molding step the encapsulant is heated and flows over the device. Because the conductors, 22, provide gaps between die and spacer they will likewise be filled with the encapsulating material resulting in encapsulant/adhesive in between die and spacer with conductors, 22 in contact with adhesives.

18. Regarding applicant selected inductance and resistance, applicant contends that examiner has not made a prima facie case, because operational ranges are not provided. A disclosure of using an inductor or alternative embodiment of a resistor provides for both inductance and resistance. While the exact inductance is not given both an inductance and resistance does exist. A mere change in proportion does not amount to patentability. Thus applicant's claim amounts to merely be a difference in degree. As indicated in *In re Aller* "temperatures, or in concentrations or in both would

pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is

be an unpatentable modification..." There is no invention that would rise to the level of patentability in simply taking Poddar's device that teaches use of an inductor and therefore an inductance and then simply modifying its inductance. This is a skill within the capabilities of one of ordinary skill in the art. Since applicant has not evidenced, anything beyond the capabilities of one of ordinary skill in the art, any new and unexpected results that were different in kind and not degree. A change in range is not a patentable modification. In re Aller, 105 USPQ 233, 235 (1955).

19. As for the placement of the of the passive component, applicant contends that such a movement to between the spacer and upper or lower adhesive would not work, because it will then not contact the conductor and work improperly, Examiner respectfully disagrees. Poddar already discloses that the passive component may be on or embedded in the spacer. Once the passive is embedded in the spacer it automatically is between a portion of spacer and adhesive and falls within the scope of the claim. Likewise, either arrangement would cause for a modification of the metallization within the space. Movement of the passive component does not destroy the device or make it somehow inoperable simply, because other elements would need to be modified. The device is still capable of performing its intended purpose and contemplates such movement by disclosing its passive component in alternate locations. Poddar does not limit where its passive component is placed. The conductors, 22, would still provide external contacts for the spacers.

Conclusion

likely the product not of innovation but of ordinary skill and common sense).

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In Patents (U.S 6,833,285), (U.S 7,183,135) and (U.S 6,862,189) inductors formed from thin strips of conductive material.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M. MITCHELL whose telephone number is (571)272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew Landau can be reached on (571) 272-1731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

March 23, 2010
/James M. Mitchell/
Examiner, Art Unit 2813

/Matthew C. Landau/

Supervisory Patent Examiner, Art Unit 2813